SONY

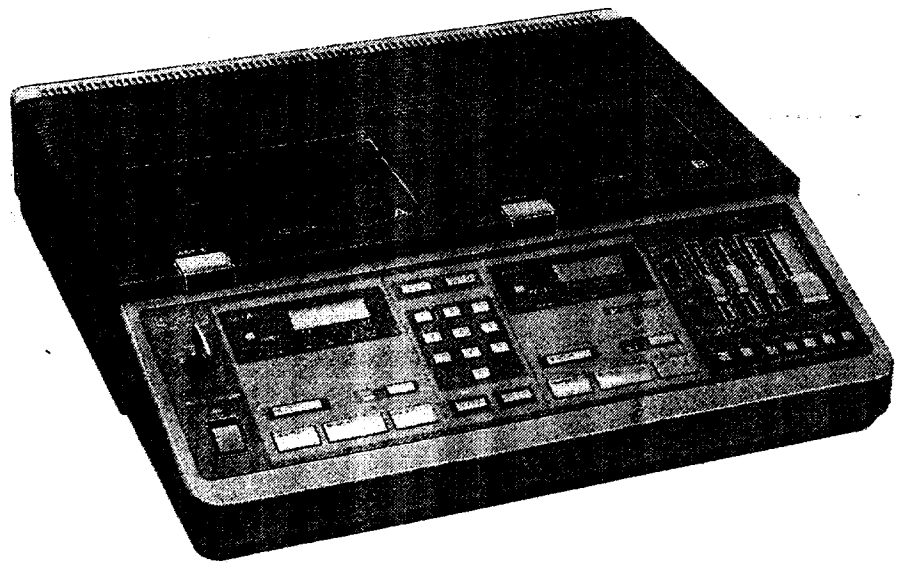
3-769-762-22 (1)

Confer-Corder

BM-246

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.



OWNER'S RECORD

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. BM-246 Serial No._____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a-commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

THIS APPARATUS COMPLIES WITH THE CLASS A LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTERFERENCE REGULATIONS.

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General Description of BM-246

Specially designed for recording courtroom proceedings, conferences or meetings.

Dual-deck confer-corder
With the AUTO CHANGE switch ON, long uninterrupted recording is possible. Before the end of tape on deck A (B), recording on deck B (A) starts automatically.
With the AUTO CHANGE switch OFF, both decks A and B can be operated simultaneously or separately.

4-track, 4-channel recording system
Eight microphone inputs into four channels can be recorded simultaneously. (The sound input from two microphones is mixed and recorded on one channel.)
Any channel or all can be selected for monitoring.

Search functions
A particular recorded segment of the tape can be quickly located and the end of the last recorded segment on the tape can easily be located.

Fail-safe warning system
Alarm sound and indication on the counter display prevent recording errors.

Recorded cassette protection
Built-in circuitry makes it impossible to record over a recorded segment on the cassette.

Digital tape counter and alarm indicator
The tape position (4-digit readout 0000 to 9999) and cassette number (1, 2, 3, etc.) during continuous recording and alarm indication appear for easy reference.

Transcribing capability
With the use of the optional FS-75 foot control unit, deck B can be used for transcribing.

Recording of telephone calls
With the use of the optional RDI-246 telephone interface, up to four telephone lines can be connected for long uninterrupted recording of calls.

Public address and display jacks
A PA (public address) jack and DISPLAY connector (for optional remote display) are provided.

Security key lock
A security key locks the cassette holders of both decks A and B.

Precautions

- Operate the unit only on 120V AC, 60Hz.
- Unplug the unit from the wall outlet when it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull it by the cord.
- Two tape speeds can be selected for recording with the TAPE SPEED selector: 2.4cm/sec. or 1.2cm/sec. Match the playback speed to the recording speed.
- Do not install the unit in a location near heat sources such as radiators or airduct or in a place subject to direct sunlight, excessive dust, mechanical vibration, or shock.
- Allow adequate air circulatin to prevent internal heat build-up. Do not place the unit near materials (curtains, draperies) that may block the ventilation holes.
- Should any solid object or liquid fall into the unit, unplug the unit and have it checked by qualified personnel before operating it any further.

Notes on Cassettes

Sony DC-90 series cassettes
For conference recording, we recommend use of the Sony DC cassettes (leaderless tape).

This recorder does not record over a previously recorded segment on the tape.
To record on pre-recorded cassette, fully erase the cassette with the use of the optional BE-9H cassette eraser before recording.

Recording time
Recording times are as follows.

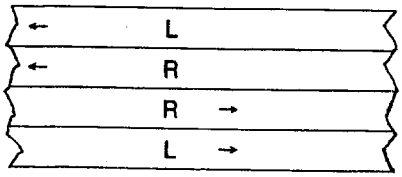
Cassette	Position of TAPE SPEED selector	
	2.4 cm	1.2 cm
DC-60	60 min.	120 min.
DC-90	90 min.	180 min.

Tape format
This system utilizes the full tape width for recording to permit simultaneous use of up to four channels with eight microphones. The tape is divided into four separate tracks, permitting 4-track, 4-channel operation with two microphone inputs recorded on each track. For this reason, only one side of the cassette can be used for recording.

BM-246

CH-4	Microphone input	7 and 8
CH-3	Microphone input	5 and 6
CH-2	Microphone input	3 and 4
CH-1	Microphone input	1 and 2

A conventional cassette deck



Slack in the tape
Before inserting the cassette, take up any slack in the tape by using a pencil.

To erase a cassette
For erasing a recorded cassette, use the optional BE-9H cassette eraser which provides a quick and easy erasure.

Location and Function

Cassette holder (deck A)

⏏ Eject button (deck A)

Counter/alarm indicator (deck A)
Shows the tape position, cassette number and alarm indications. The displayed information is retained even when the STANDBY switch is set to STANDBY or retained for approx. two hours if the AC power cord is disconnected.

RESET button (deck A)
Returns the counter readout to 0 or sets it to the desired value when the numeric buttons are pressed while keeping the RESET button pressed.

SIGNAL indicators for CH1, CH2, CH3 and CH4
Flash when sound is input or during playback.

■ STOP button (deck A)
Stops tape motion (playback and fast winding).
To stop recording, press both the STOP and REC buttons simultaneously.

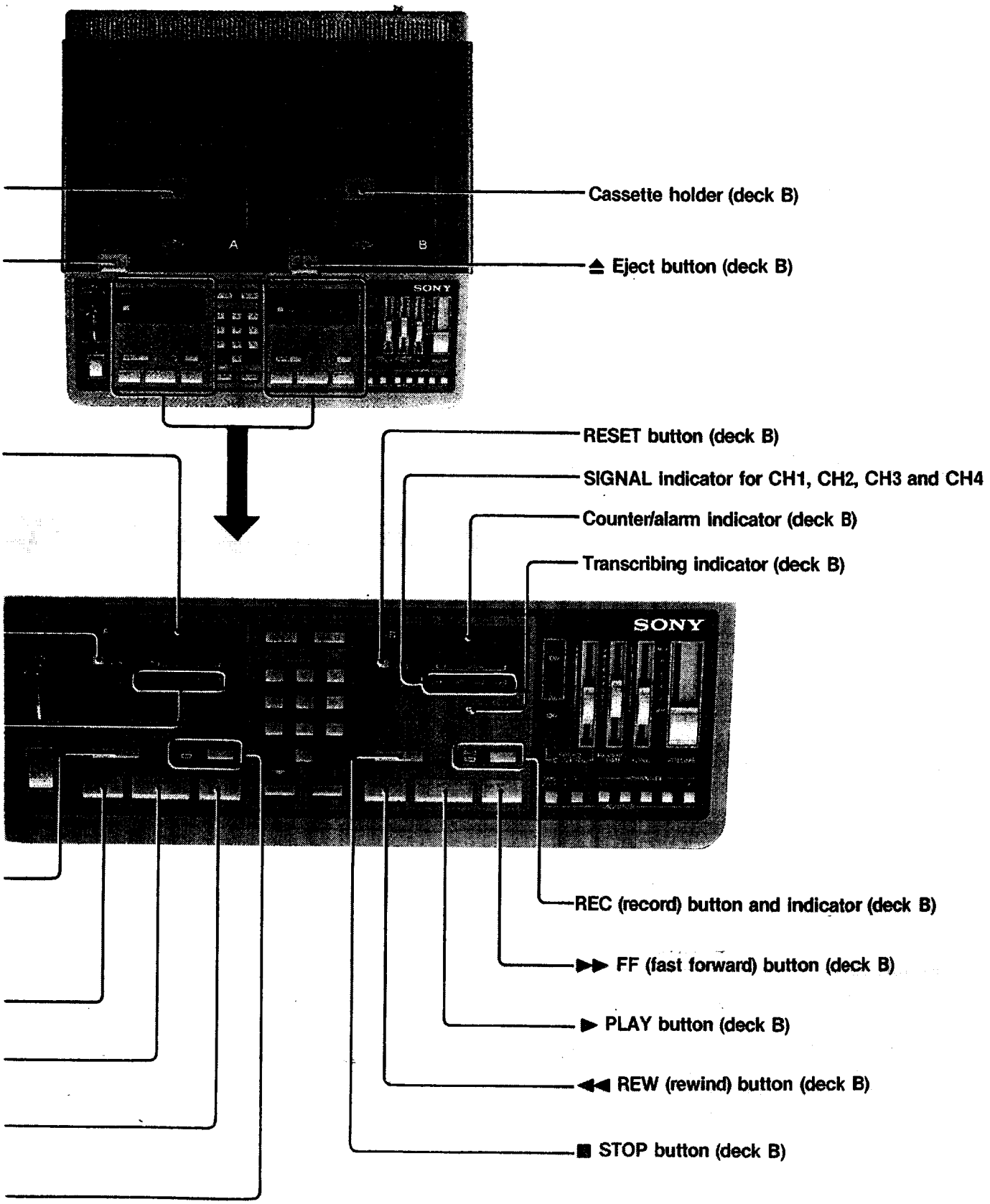
◀◀ REW (rewind) button (deck A)

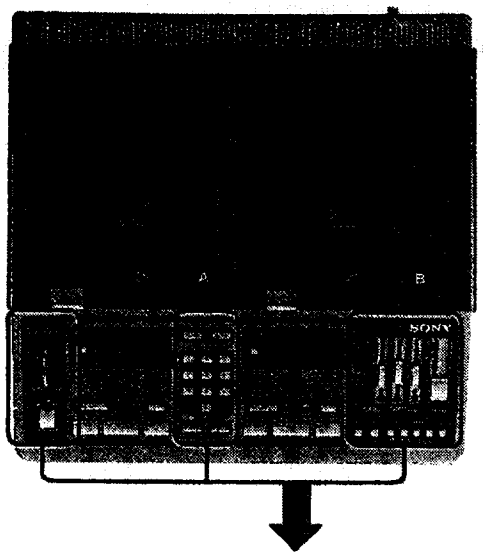
▶ PLAY button (deck A)

▶▶ FF (fast forward) button (deck A)

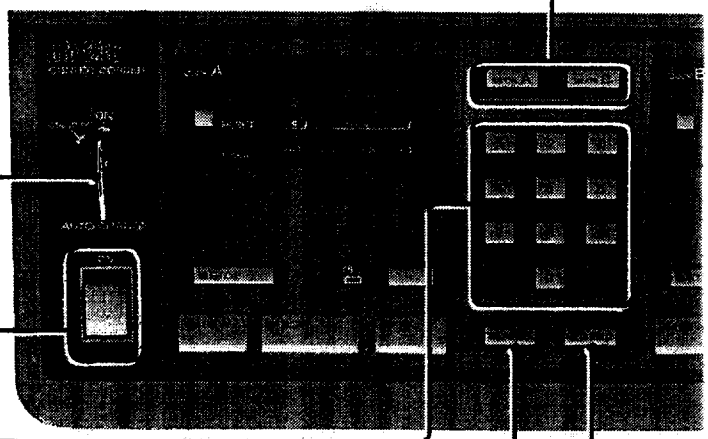
REC (record) button and indicator (deck A)
The indicator illuminates during recording

Controls


Cassette holder (deck B)
⏏ Eject button (deck B)
RESET button (deck B)
SIGNAL indicator for CH1, CH2, CH3 and CH4
Counter/alarm indicator (deck B)
Transcribing indicator (deck B)
REC (record) button and indicator (deck B)
▶▶ FF (fast forward) button (deck B)
▶ PLAY button (deck B)
◀◀ REW (rewind) button (deck B)
■ STOP button (deck B)
A
B
SONY



DECK A and DECK B buttons
Used for search and record end operations.



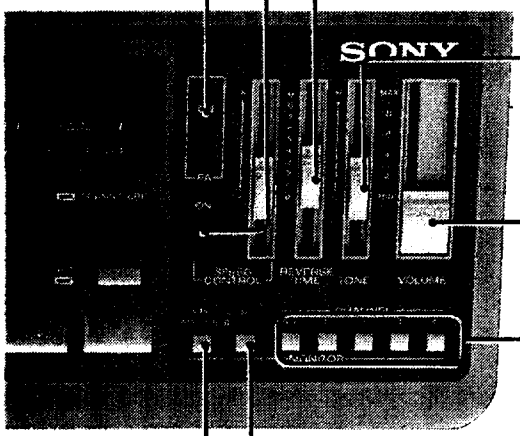
STANDBY switch

AUTO CHANGE switch and indicator
The indicator lights up when the switch is turned ON or the connected RDI-246 (optional) is operated.

Numeric buttons
Used in conjunction with the search function to input the 4-digit count to locate a specific tape segment. Cassette number or tape position can be located by pressing the numeric button while keeping the RESET button pressed.

SEARCH button
Used for quick location of a specific segment of the tape.

REC (record) END button
Used to locate the end of the last recorded segment on the tape. This function enables you to continue recording from the point where you left off.



PA (public address) ON switch and indicator
The indicator lights up when the switch is turned on.

SPEED CONTROL switch and control (for transcribing only)
The control operates when the switch is turned on.

REVERSE TIME control (for transcribing only)
Permits review of the last few words each time you stop the tape when transcribing using the optional FS-75 foot contol unit.

TONE control
Adjusts tone quality in playback. For more treble, move the control towards H.

VOLUME control
Adjusts the sound level during playback or monitoring.

MONITOR CHANNEL select buttons
ALL: For monitoring all channels simultaneously.
1, 2, 3, 4: For monitoring the designated channel.

MONITOR A (deck A)/B (deck B) selector

A B

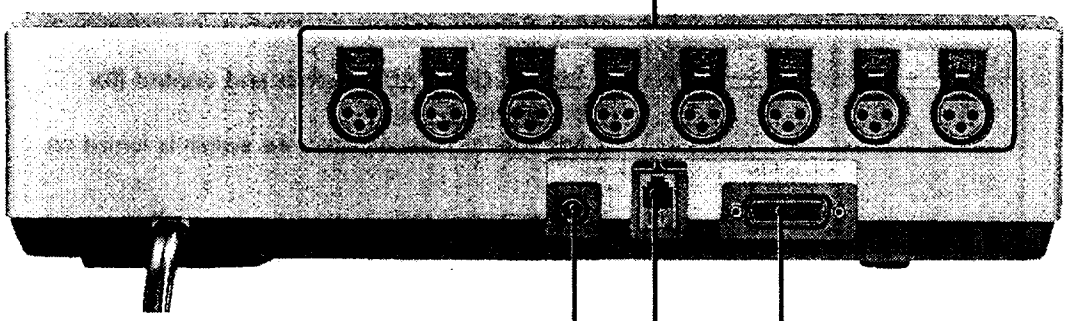
MONITOR TAPE/SOURCE selector (for recording only)
Selects the sound to be monitored.
TAPE: For monitoring the recorded sound.
SOURCE: For monitoring the signal being recorded on the tape.

TAPE SOURCE

While playing back the cassette, playback sound can be monitored regardless of this selector setting.

Rear panel

Microphone connectors (Cannon XLR-3-31 type)
Accept microphones with XLR-3-12C type connector.

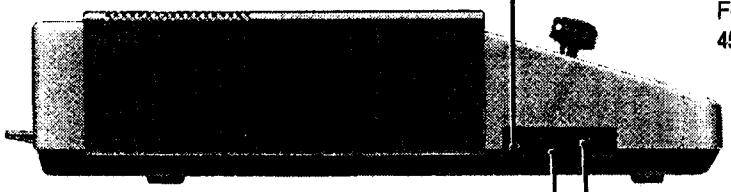


PA (public address) jack (phone jack)
Accepts the system to be connected to a public address system.

DISPLAY connector
Used for connection of an external counter unit.

CONTROL UNIT connector
Accepts the optional RDI-246 telephone interface.

Left side

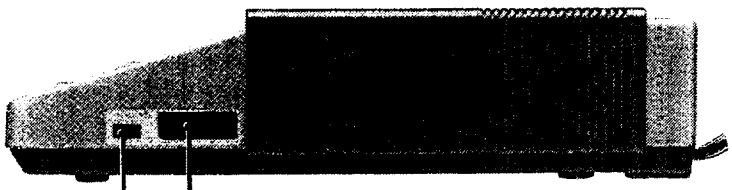


REMOTE jack
For connecting the optional RM-45A remote control unit. This enables remote start and stop of the tape on the deck which is in the record mode.
For details, refer to the instruction manual of the RM-45A.

EARPHONE jack
Used for monitoring or listening in private.

TAPE SPEED selector
1.2 cm: 180 minutes of recording is possible with a DC-90 cassette.
2.4 cm: 90 minutes of recording is possible with a DC-90 cassette.
For playback, set this selector to the same position as was used when the cassette was recorded.

Right side



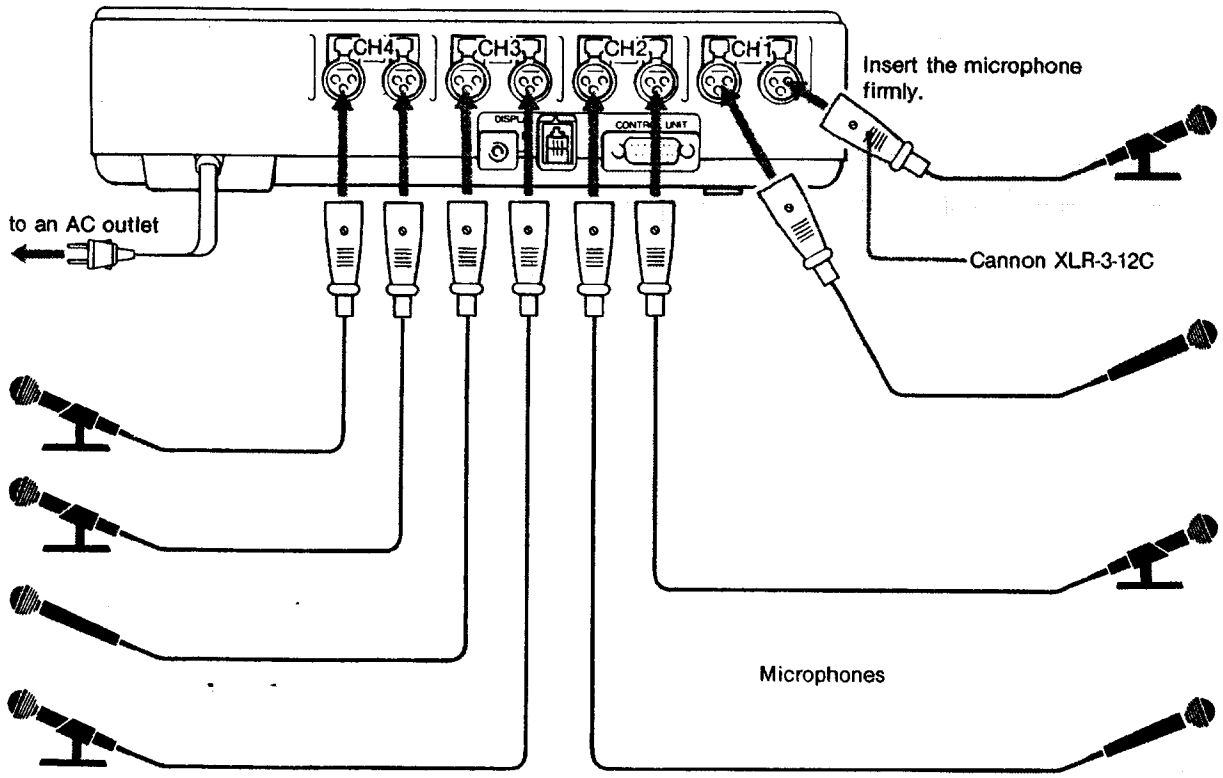
Connector for FS-75 foot control unit
Accepts the optional FS-75 foot control unit for transcribing.

TRANSCRIBE switch (for deck B only)
Activates the transcribing mode when the optional FS-75 foot control unit is connected.

Recording

Connection

Up to eight microphones can be connected.

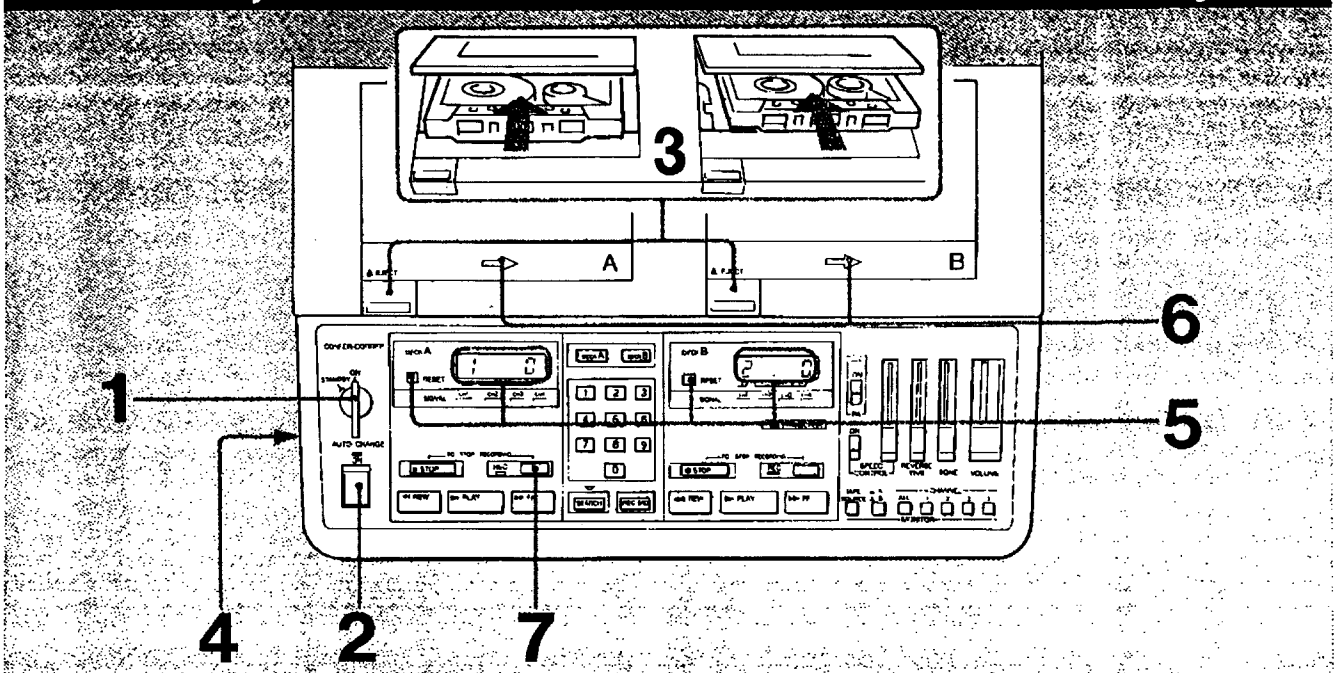


Note on continuous recording (See next page.)
The AUTO CHANGE indicator lights up when the AUTO CHANGE switch is turned ON or the connected RDI-246 (optional) is operated.

The indicator flickers rapidly to indicate that continuous recording is impossible even though the AUTO CHANGE switch is turned ON while recording both decks A and B or the TRANSCRIBE switch is turned ON.

The indicator flickers slowly to indicate that no cassette is in the cassette compartment of the deck for recording or that the deck is in the playback, fast forward or rewind mode.

To Continuously Record from Deck A to B or Vice Versa—Continuous Recording



1 Insert the supplied security key and set it to ON.

2 Turn AUTO CHANGE ON.

3 Press ⏏ EJECT of both decks A and B and insert blank cassettes into the cassette holders.

4 Set TAPE SPEED.

5 Press RESET of both decks A and B.
Cassette number and 0 (zero) for tape position appear on the counter.

6 Close the lid of both decks.

7 Press REC of deck A.
Recording starts.

Approx. three minutes before the end of tape (when the tape approaches the end of tape)
The other deck starts recording automatically.

To stop recording
Press ■ STOP and REC simultaneously.

For relay recording of more than three cassettes successively
Change the cassette in one deck while recording with the other. Endless recording can be done in this way.

Deck A and B can independently be operated
Tape playback and fast winding tape operations can be performed on one deck while recording on the other.

Cassette number is displayed
The leftmost digit of the counter indicates the cassette number when the AUTO CHANGE switch is turned ON.
Cassette number increases each time the ⏏ EJECT button is pressed.

A Long time recording is possible
Recording time is prolonged corresponding to the setting of the TAPE SPEED selector and the cassette to be used.
See page 4.

Resetting of cassette number
When the RESET button is pressed and no cassette is in the cassette compartment, both the cassette number and tape segment can be reset.

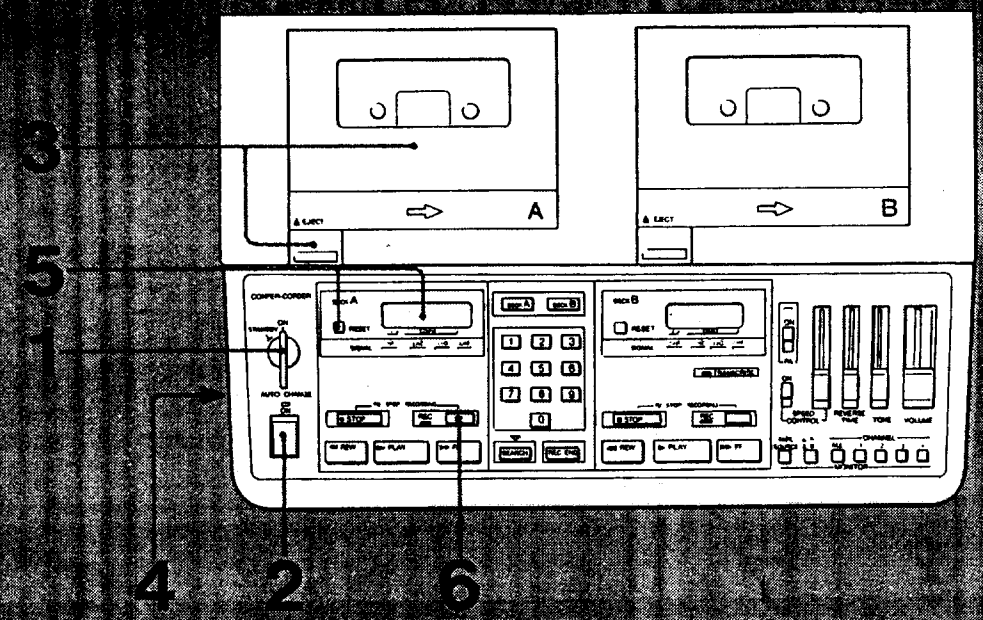
Monitoring while recording
Insert an earphone into the EARPHONE jack.

MONITOR TAPE/SOURCE selector	Sound to be monitored.
TAPE	Recorded sound
SOURCE	Sound being recorded

Microphone input sound can also be monitored through the connected PA (public address) system if one is connected to this unit.

SIGNAL indicators
Blink when sound from a microphone is input.

To Record on a Deck—Single Recording



1 **Insert the supplied security key and set the key to ON.**

2 **Turn AUTO CHANGE off.**

3 **Press ⏏ EJECT of either deck A or B and insert a blank cassette** into the cassette holder. Close the lid.

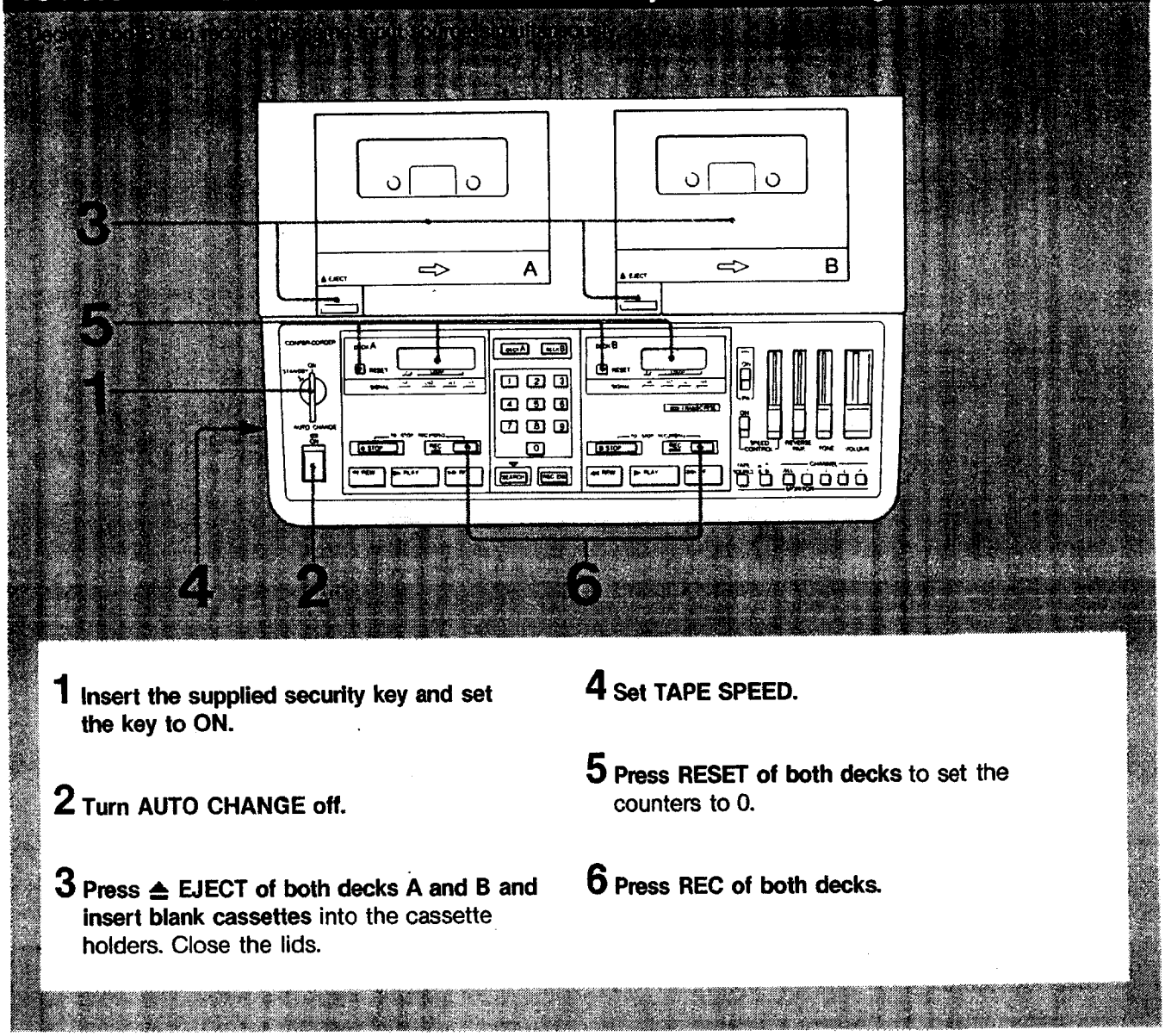
4 **Set TAPE SPEED.**

5 **Press RESET** to set the counter to 0.

6 **Press REC.**

To stop recording
Press ■ STOP and REC simultaneously.

To Record on Both Decks A and B Simultaneously—Dual Recording



1 **Insert the supplied security key and set the key to ON.**

2 **Turn AUTO CHANGE off.**

3 **Press ⏏ EJECT of both decks A and B and insert blank cassettes** into the cassette holders. Close the lids.

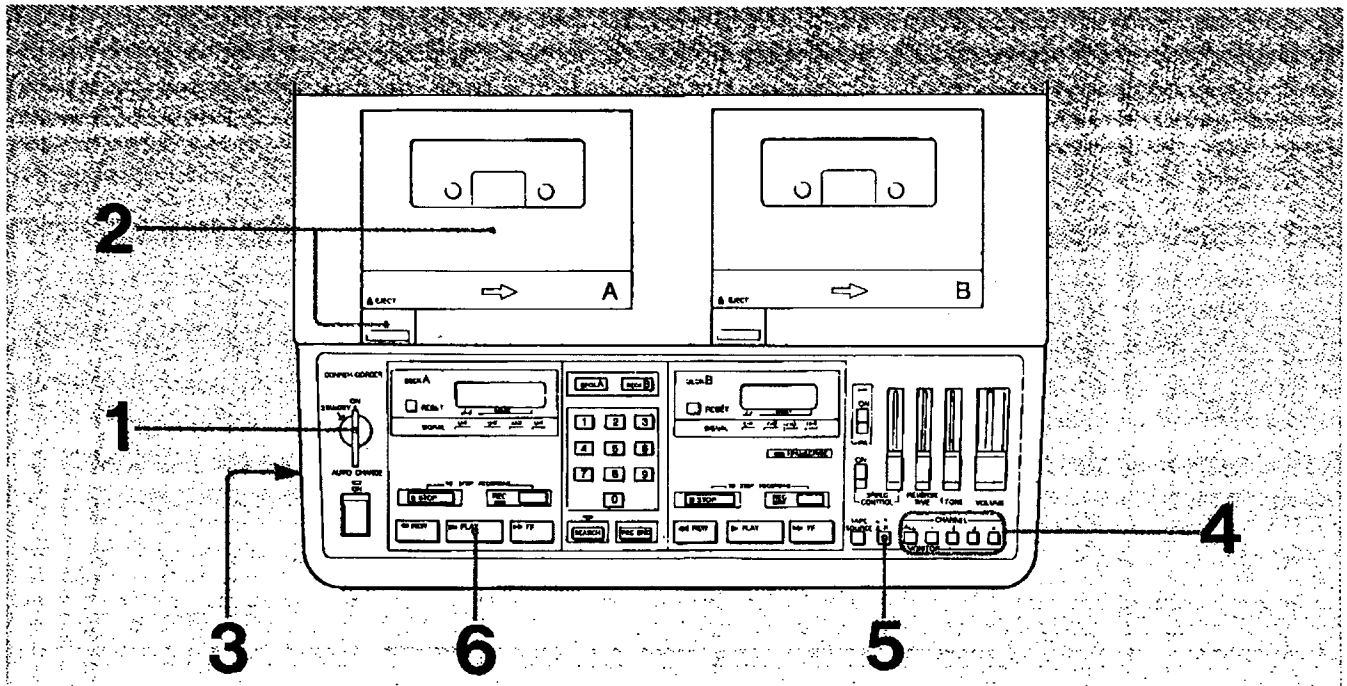
4 **Set TAPE SPEED.**

5 **Press RESET of both decks** to set the counters to 0.

6 **Press REC of both decks.**

To stop recording
Press ■ STOP and REC simultaneously.

Tape Playback



1 **Insert the supplied security key and set the key to ON.**

2 **Press ⏏ EJECT and insert a recorded cassette** into the cassette holder (deck A or B). Close the lid.

3 **Set TAPE SPEED** to the same position as that used for recording.

4 **Depress the desired MONITOR CHANNEL.**

5 **Set MONITOR A/B** to the desired position.

6 **Press ▶ PLAY.**

To stop playback
Press ■ STOP.

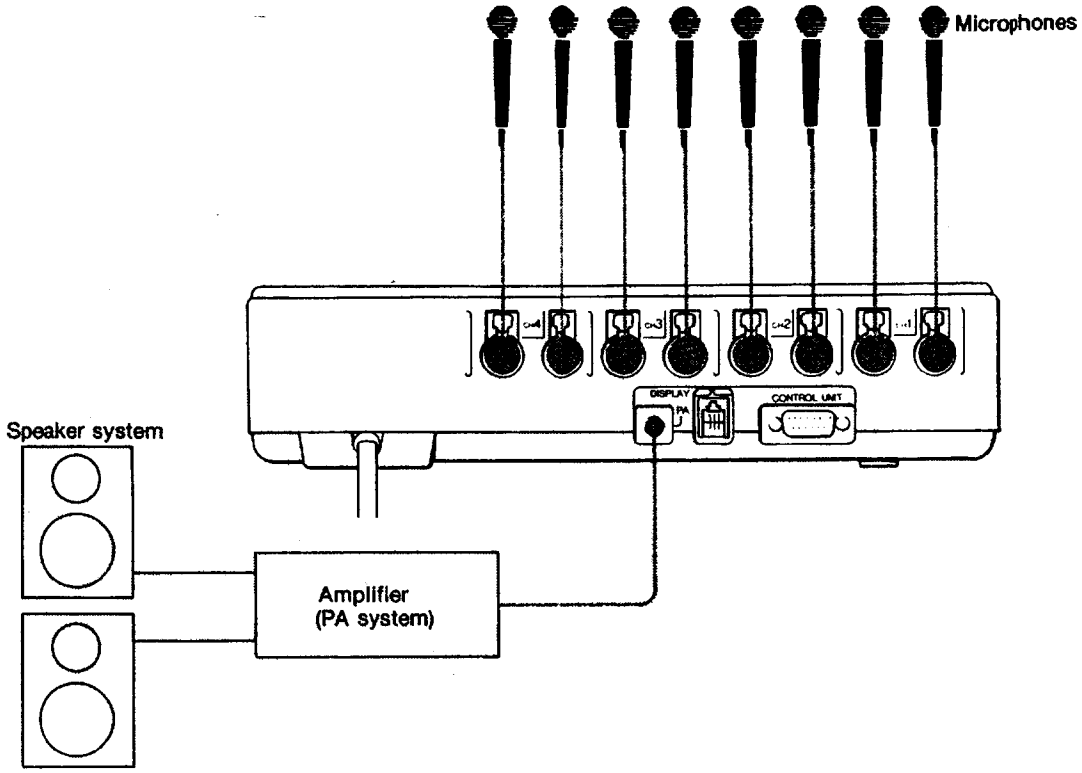
For personal listening
Connect an earphone to the EARPHONE jack.

Sound adjustment
Adjust volume and tone with the VOLUME and TONE controls.

For public address
See page 15.

Public Address

Connection



Operation

1 Turn ON PA.

2 Turn on the connected PA system.

3 Proceed with the operation steps described in "Tape Playback" to monitor during playback.
Proceed with the operation steps described in "Recording" to monitor during recording.

Sound adjustment
Adjust the volume and tone on the PA system.

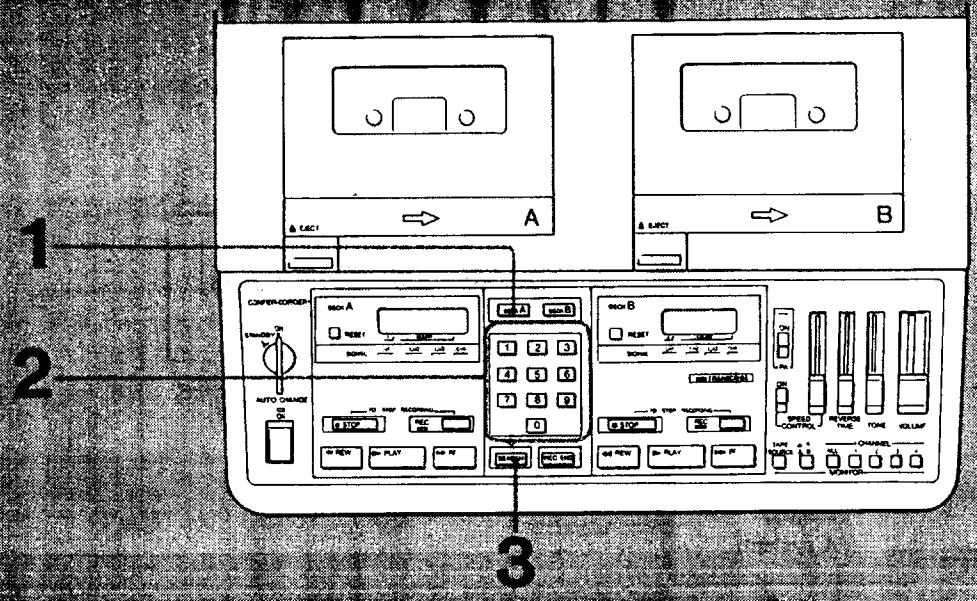
While recording
Input to a microphone in a courtroom, conference or meeting can be amplified.

Microphone testing
It can be performed through the connected PA system while stopping the tape motion.

Search Function

To Quickly Locate a Specific Segment of Tape

You can quickly locate a specific segment of the tape when the counter readout has been memorized.



1 Press DECK A (or DECK B).
The counter readout flickers.

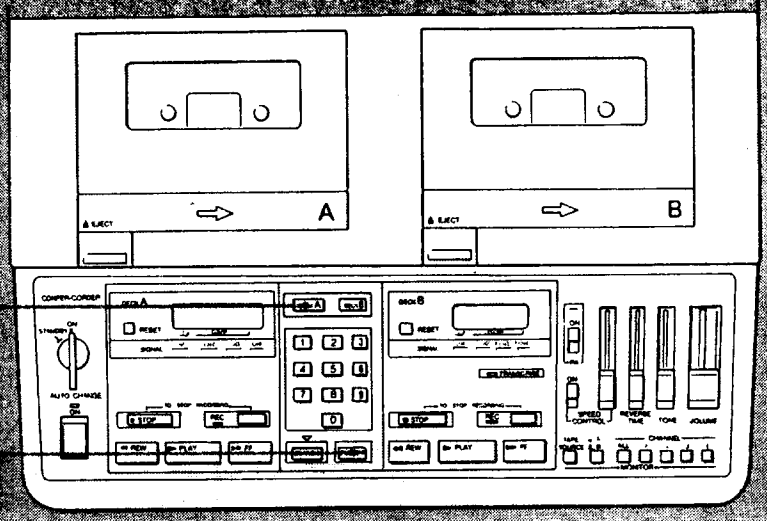
2 Press the numeric buttons to set the counter readout to the specific tape segment you wish to find.

3 Press SEARCH.
Tape is wound quickly to locate the specific tape segment.

The counter readout flickers
While searching for the specific segment.
To stop the search operation, press the DECK button again.
Flickering stops.

To Quickly Find the Recording End

You can easily find the end of the last recorded segment on the tape.

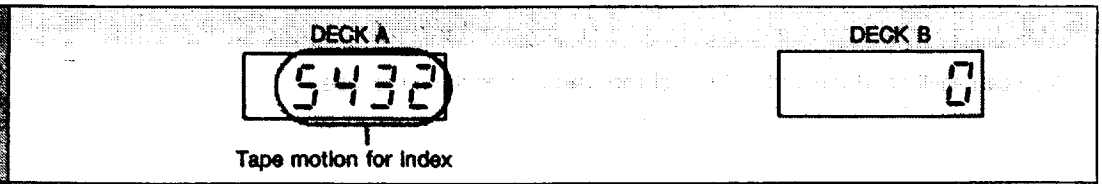
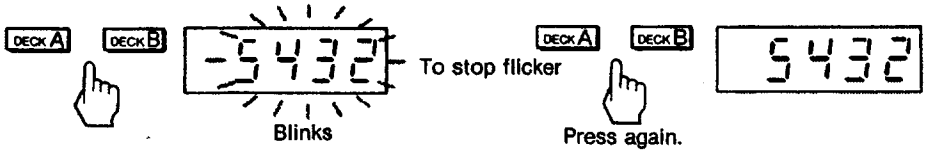
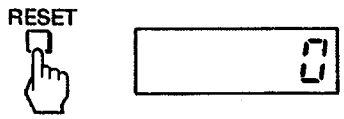
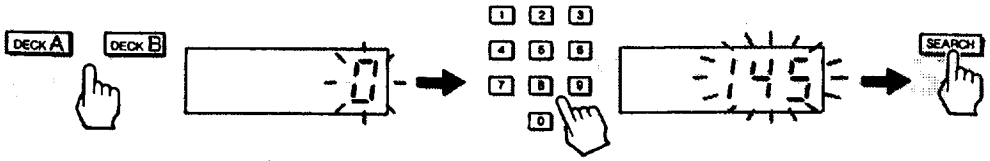
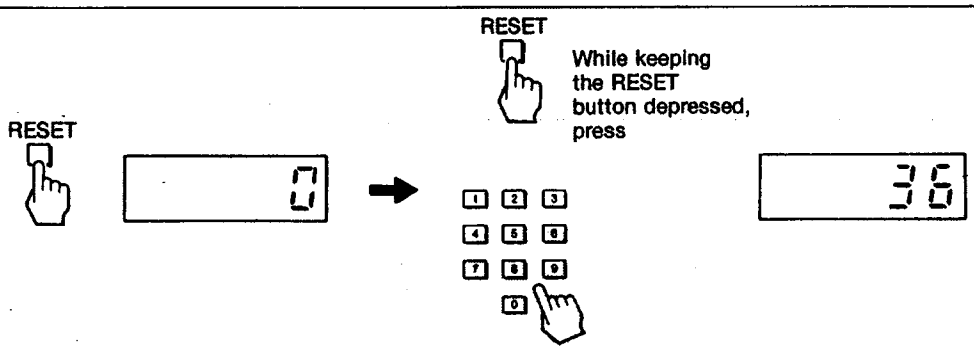


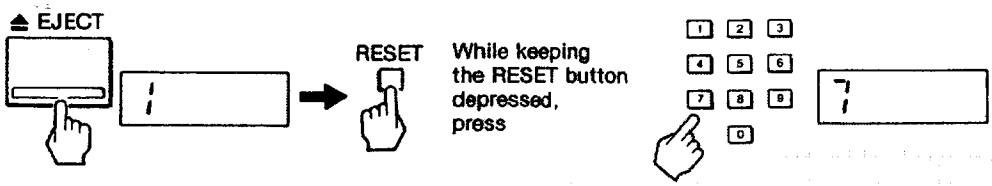
1 Press DECK A (or DECK B).
The counter readout flickers.

2 Press REC END.
The tape will stop automatically at the count number which corresponds to the end of the recording.

Note on record end function
If the count number on the counter is reset or a cassette is ejected once, the record-end memory is cleared and the record-end function does not operate.

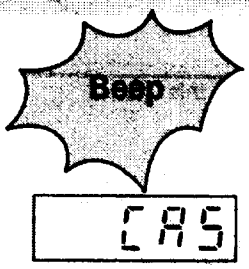
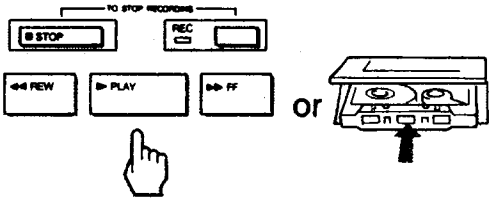
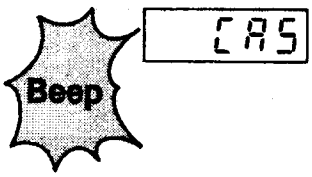
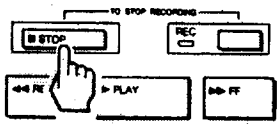
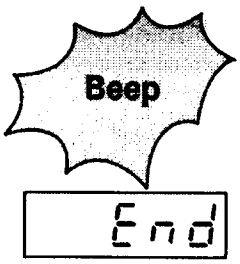
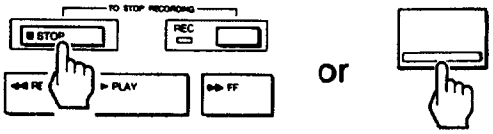
Information Display

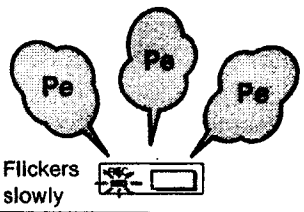
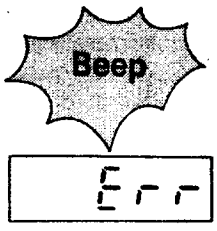
AUTO CHANGE ON	
To select the deck	
To reset the counter readout	
For search operation	
For record-end operation	
For random resetting	

AUTO CHANGE ON	
To change the cassette number	

Alarm System

An alarm sounds and indication appears on the display.

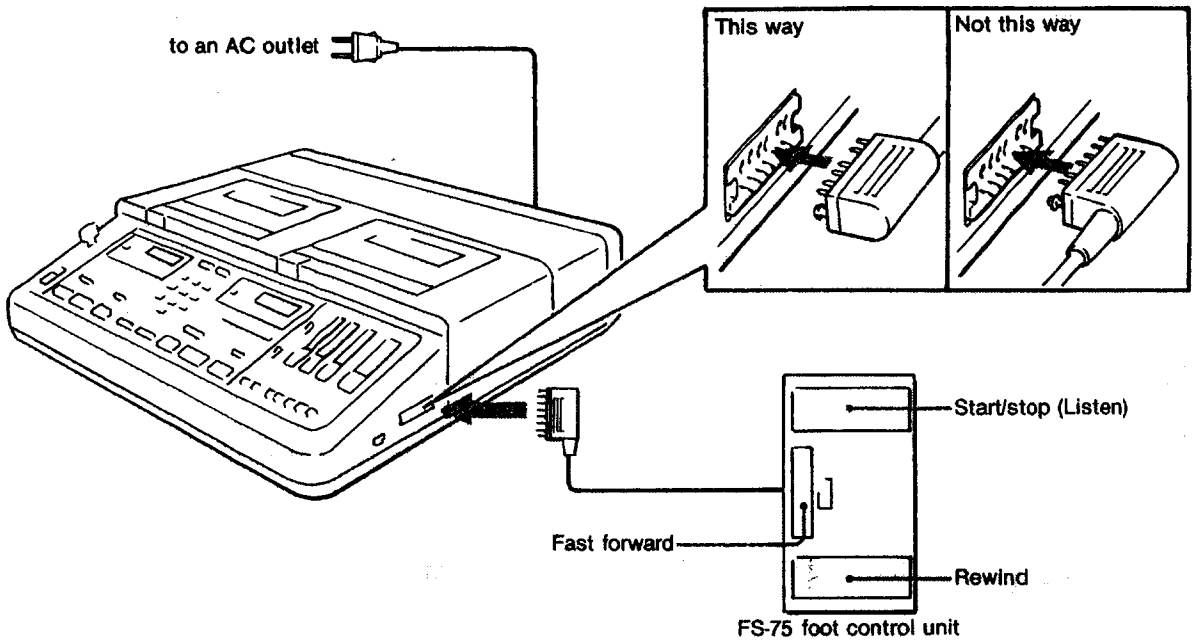
Alarm system	Situation	To release alarm system
	A tape operation button is pressed when no cassette is placed in the cassette compartment.	• Release the tape operation button. • Insert a cassette. 
	A deck starts recording automatically when no cassette is in the cassette compartment (during continuous recording).	• Press ■ STOP. 
	Broken tape End of tape	• Press ■ STOP or ⏏ EJECT. 

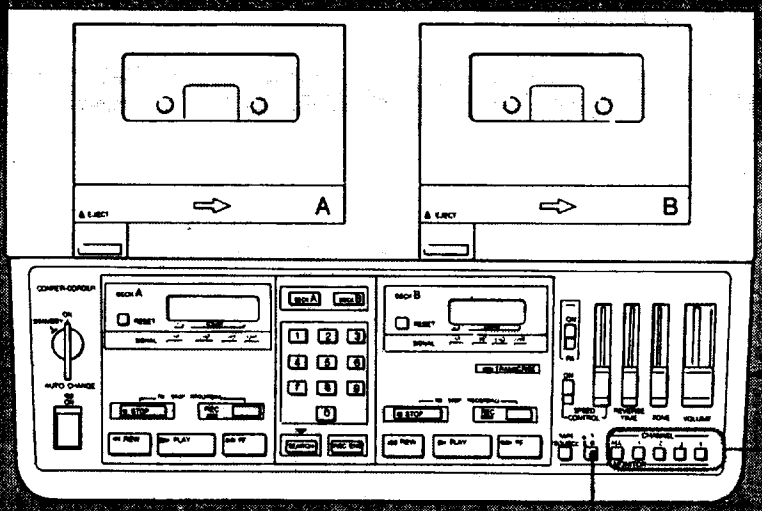
Alarm system	Situation	To release alarm system
	Approx. three minutes before the end of tape (while recording)	• Recording is stopped.
	Record on the pre-recorded portion. A deck starts recording automatically when the other deck is set in the playback, fast forward or rewind mode.	• Press ■ STOP or ⏏ EJECT.

Transcribing

The deck B can be used as a transcriber by connecting the optional FS-75 foot control unit.

Connection





1 **Set TRANSCRIBE to ON.**

2 **Set TAPE SPEED** to the same position as that used for recording.

3 **Keep MONITOR A/B released (B).**

4 **Depress the desired MONITOR CHANNEL.**

To control transcribing speed
Transcribing speed can be controlled.

1 Turn ON the SPEED CONTROL switch.
2 Set the SPEED CONTROL to your preference.
To increase playback speed, move the control toward +.
To decrease the speed, move the control toward −.

To obtain the original speed
Turn off SPEED CONTROL.

Each time you resume listening
The last few words can be reviewed.
When the REVERSE TIME control is moved upwards, the last portion of the tape will be reviewed by using the start/stop function of the FS-75.

At "9" position, the BM-246 stops to review about the last six seconds.
At "0" position, this unit stops without reviewing.
Set the control so that it clicks into position.

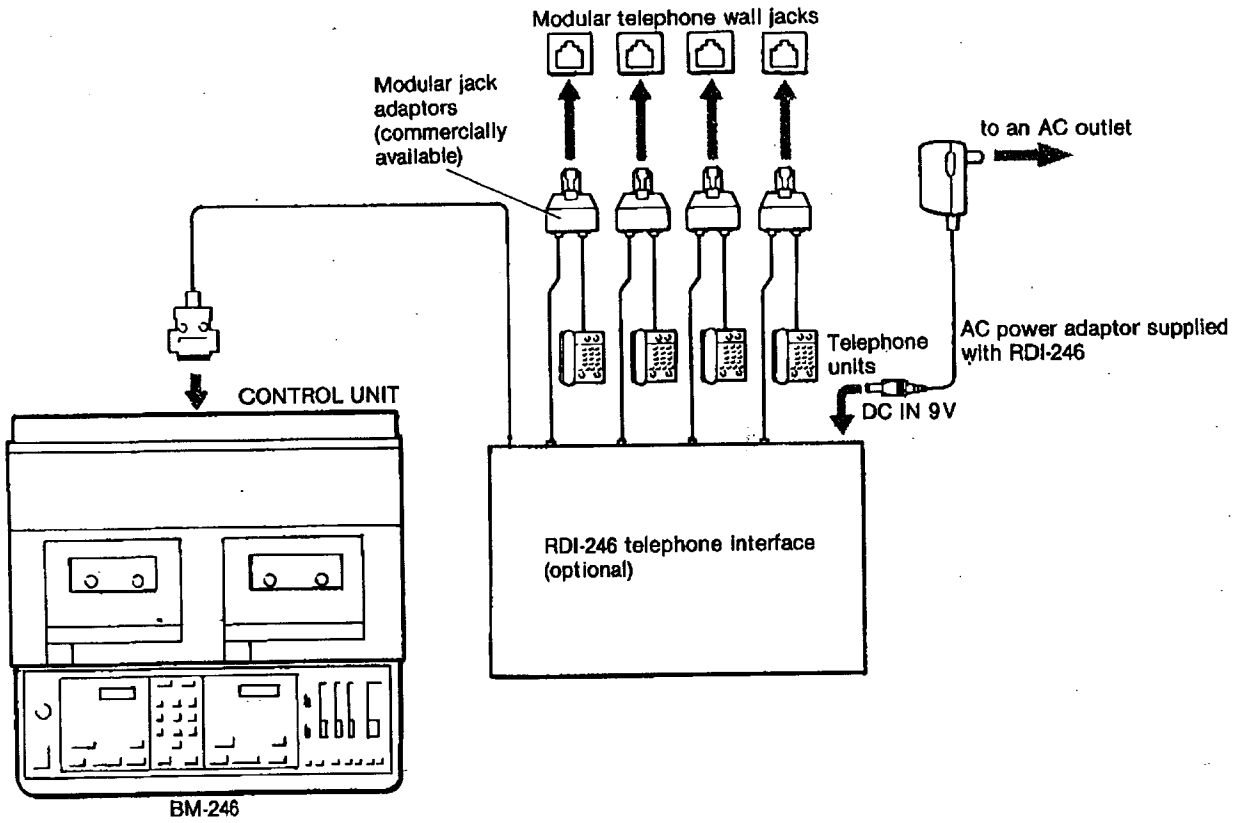
Notes
- REVERSE TIME is operative only when the optional FS-75 foot control unit is connected.
- When the TRANSCRIBE switch is turned on, deck A is inoperative.

The TRANSCRIBE indicator blinks
To indicate that the transcribing mode is inoperative even though the TRANSCRIBE switch is turned ON when the AUTO CHANGE switch is turned ON or either deck is being operated.

Telephone Recording

Telehone calls from up to four telephone lines can be recorded on this unit by using the optional RDI-246 telephone interface.
When the RDI-246 is connected, a long uninterrupted recording (continuous recording) can be made.

Connection



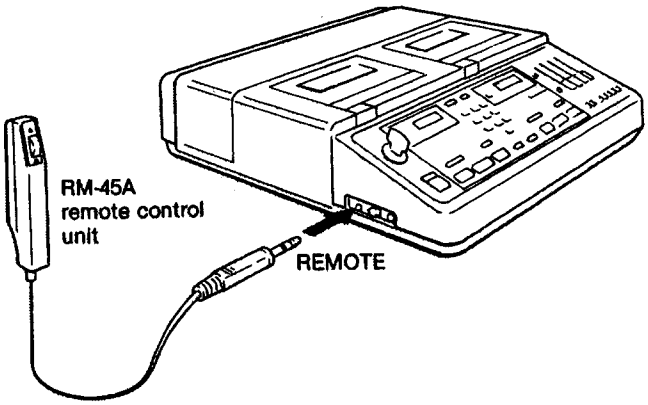
Operation

Recording procedures are the same as that described in "To Continuously Record from Deck A to B or Vice Versa" on page 11. In this case, recording takes place regardless of the setting of AUTO CHANGE.

Remote Control Operation

You can remotely control the BM-246 by using the optional RM-45A remote control unit.
Remote control operation is performed when the BM-246 is set in record mode.

Connection



Operation

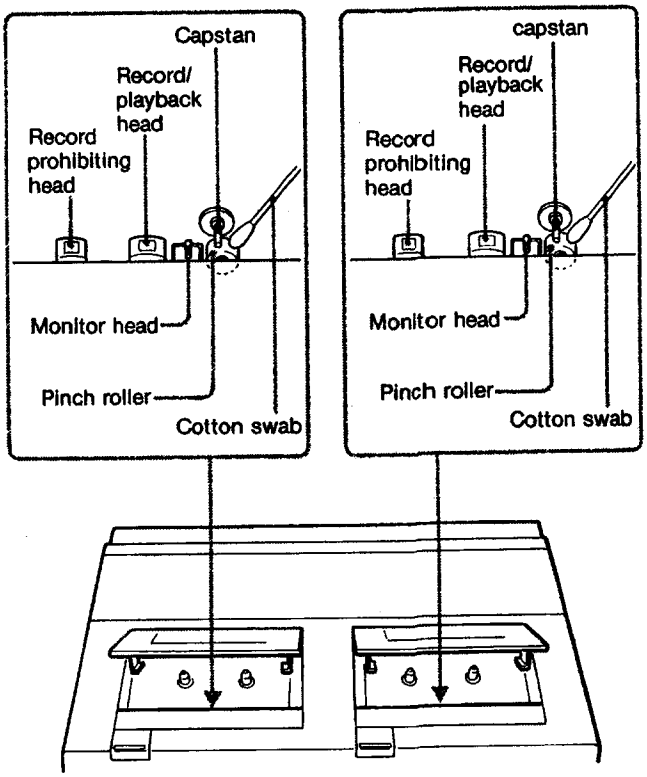
Press REC.

Then, start/stop operation can be performed on the RM-45A remote control unit.

The REC indicator flickers rapidly when the remote control unit stops the BM-246.

Maintenance

Cleaning the heads
To produce optimum sound, keep the tape heads clean. Moisten a cotton swab or a soft cloth with alcohol, and wipe the parts shown below.



Cleaning the cabinet
Clean the cabinet with a soft cloth slightly moistened with a mild detergent solution. Never use strong solvents, such as thinner or benzine, since they may damage the finish.

Specifications

Recording system	4-track, 4-channel monaural, one-way
Fast winding time	Approx. 2 min. 20 sec. with Sony C-90 cassette
Frequency response	200–6,000 Hz (2.4 cm/sec) 200–4,000 Hz (1.2 cm/sec)
Tape speed	2.4 cm/sec. ($^{15}/_{16}$ ips) and 1.2 cm/sec. ($^{15}/_{32}$ ips)
Playback speed control range	Approx. +50% to −10% of normal speed at 2.4 cm/sec and 1.2 cm/sec.
Speaker	Approx. 7.7 cm ($3^{1}/_{16}$ inches) dia.
Power output	800 mW (at 10% harmonic distortion)
Inputs	Eight microphone inputs (type XLR-3) Sensitivity 0.2 mV (−72 dB) for low impedance microphone
Outputs	Earphone jack (mini jack) for 8-ohm earphone Public address connector (phone jack) for 10-kilohm amplifier Display connector for external digital counter display
Other connectors	Control unit connector for the optional RDI-246 telephone interface unit Transcribing connector for the optional FS-75 foot control unit Recording remote control connector for the optional RM-45A remote control unit
Power requirements	120 V AC, 60 Hz
Current drain	350 mA
Dimensins	Approx. 351 × 86.5 × 342 mm (w/h/d) ($13^{7}/_{8} \times 3^{1}/_{2} \times 13^{1}/_{2}$ inches)
Weight	Approx. 5.72 kg (12 lb 10 oz) including projecting parts and controls
Accessories supplied	
	Cassette (2)
	Security key (2)

Design and specifications subject to change without notice.

Optional Accessories

Telephone interface RDI-246
4-channel transcriber BM-147
Dynamic microphone F-BM7, F-45C, F-720
Microphone extension cable EC-10XLR
Foot control unit FS-75
Remote control unit RM-45A
Earphone MDR-U10M
Cassette eraser BE-9H

Troubleshooting Guide

Should a problem occur, conduct the following simple tests to determine whether or not servicing is required. If the problem persists after you have conducted these tests, consult the nearest Sony Information Products dealer.

Troubles	Causes and/or remedies
The unit does not operate.	• Connect the AC power cord to a wall outlet. • Set the STANDBY switch to ON.
No sound from the built-in speaker	• Slide the VOLUME control upwards. • Set the MONITOR TAPE/SOURCE switch, MONITOR A/B switch and MONITOR CHANNEL selectors correctly. • Unplug the earphone from the EARPHONE jack.
The tape speed is too fast or too slow.	• Set the TAPE SPEED selector correctly. • Adjust the SPEED CONTROL when the SPEED CONTROL switch is set to ON.
A deck does not start recording when the other deck reaches the pre-end of tape.	• Turn the AUTO CHANGE switch ON. • The tape of the cassette loaded on the other deck has been wound onto the right reel.
Alarm sounds or alarm indication appears on the counter.	• See page 19.
Sound drop-outs, loss of high frequency sounds, or excessive noise.	• The heads are dirty. See page 23.